ELECTRONICS

6GU7

TWIN TRIODE

DESCRIPTION AND RATING

The 6GU7 is a medium-mu twin triode of the 9-pin miniature type intended for use in the matrixing circuits of color television receivers. It can also be used in phase-inverter, multivibrator, and general-purpose amplifier applications.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

	Series Circuit*	Parallel Circuit‡	
Heater Voltage, AC or DC	6.3	6.3±0.6§	Volts
Heater Current	0.6±0.04§	0.6¶	Amperes
Heater Warm-up Time, average#	11	---	Seconds

Direct Interelectrode Capacitances, approximate∆

	Section 1	Section 2	
Grid to Plate: (g to p)	3.0	3.0	pf
Input: g to (h + k)	3.4	3.6	pf
Output: p to (h + k)	0.44	0.34	pf
Plate (Section 1 to Plate (Section 2): (1p to 2p)	1.0		pf

MECHANICAL

Operating Position - Any
Envelope - T-6 1/2, Glass
Base - E9-1, Small Button 9-Pin
Outline Drawing - EIA 6-3

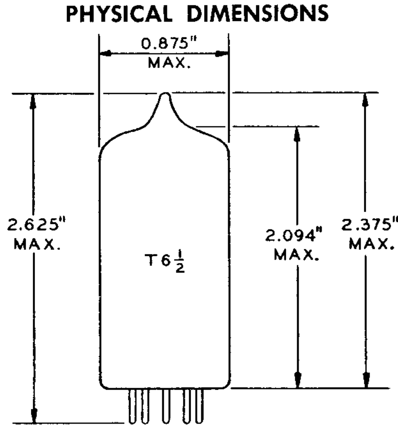
Maximum Diameter	0.875	Inches
Maximum Over-all Length	2.625	Inches
Maximum Seated Height	2.375	Inches

MAXIMUM RATINGS

DESIGN-MAXIMUM VALUES

Plate Voltage	330	Volts
Positive DC Grid Voltage	0	Volts
Plate Dissipation, Each Plate	3.0	Watts
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid Circuit Resistance		
With Fixed Bias	1.0	Megohms

PHYSICAL DIMENSIONS

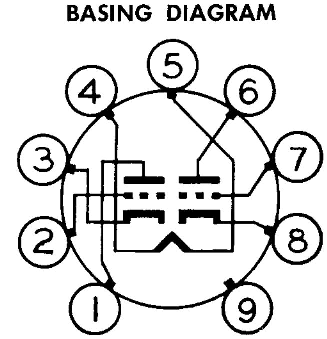


EIA 6-3

TERMINAL CONNECTIONS

Pin 1 - Plate (Section 2)
Pin 2 - Grid (Section 2)
Pin 3 - Cathode (Section 2)
Pin 4 - Heater
Pin 5 - Heater
Pin 6 - Plate (Section 1)
Pin 7 - Grid (Section 1)
Pin 8 - Cathode (Section 1)
Pin 9 - No Connection

BASING DIAGRAM



EIA 9LP

MAXIMUM RATINGS (Cont'd)

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration:

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A_1 AMPLIFIER, EACH SECTION

Plate Voltage	250	Volts
Grid Voltage	-10.5	Volts
Amplification Factor	17	
Plate Resistance, approximate	5500	Ohms
Transconductance	3100	Micromhos
Plate Current	11.5	Milliamperes
Plate Current, approximate Ec = -14 volts	4	Milliamperes
Grid Voltage, approximate Ib = 50 Microamperes	-23	Volts

NOTES

* Operated with the heater in series with the heaters of other tubes having the same bogey heater current.

‡ Operated with the heater in parallel with the heaters of other tubes having the same bogey heater voltage.

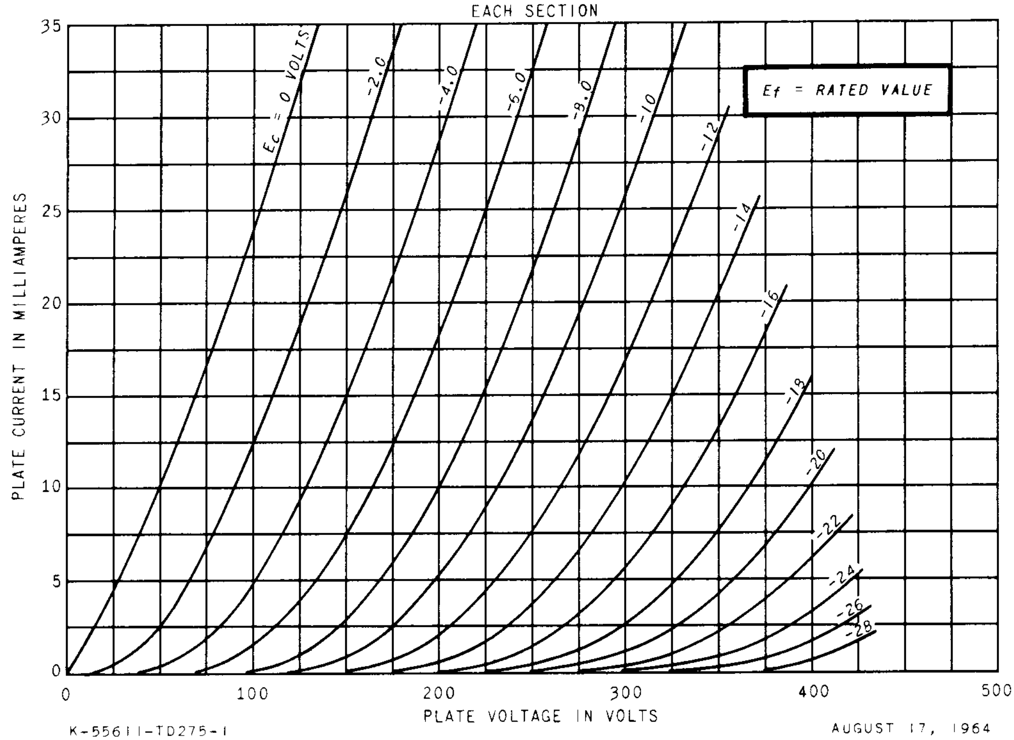
§ For parallel heater operation, the equipment designer should design the equipment so that heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance; for series heater operation, the equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.

¶ Heater current of a bogey tube at Ef = 6.3 volts.

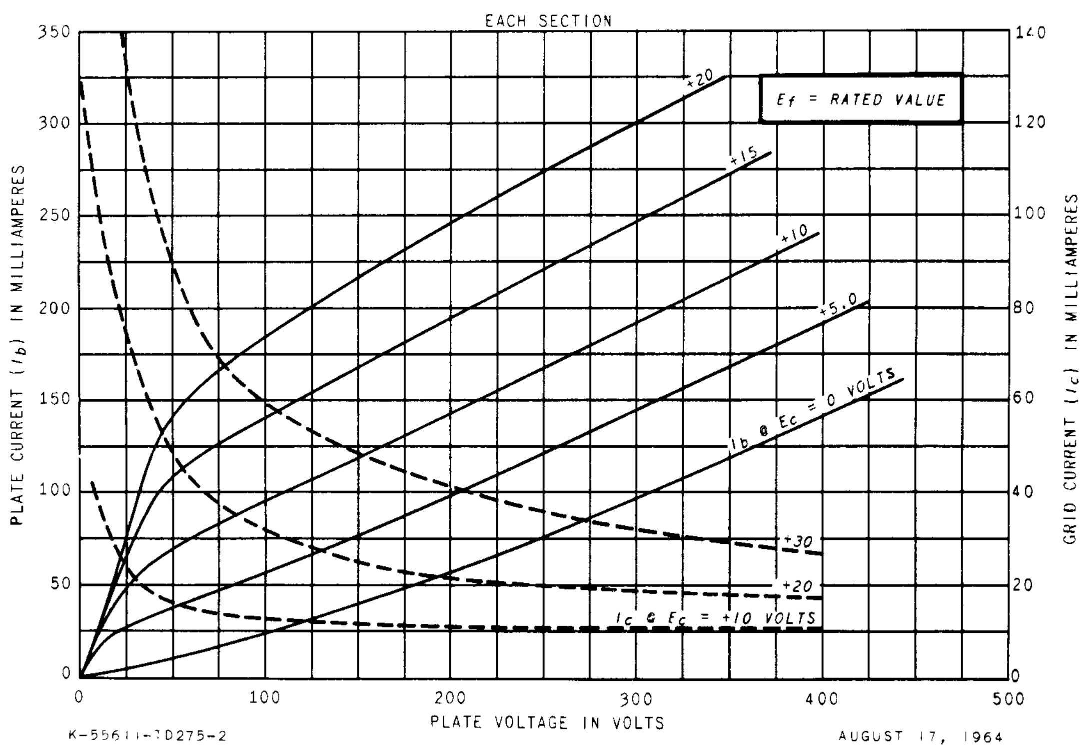
The time required for the voltage across the heater to reach 80 percent of the bogey value after applying 4 times the bogey heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the bogey heater voltage divided by the bogey heater current.

Δ Without external shield.

AVERAGE PLATE CHARACTERISTICS

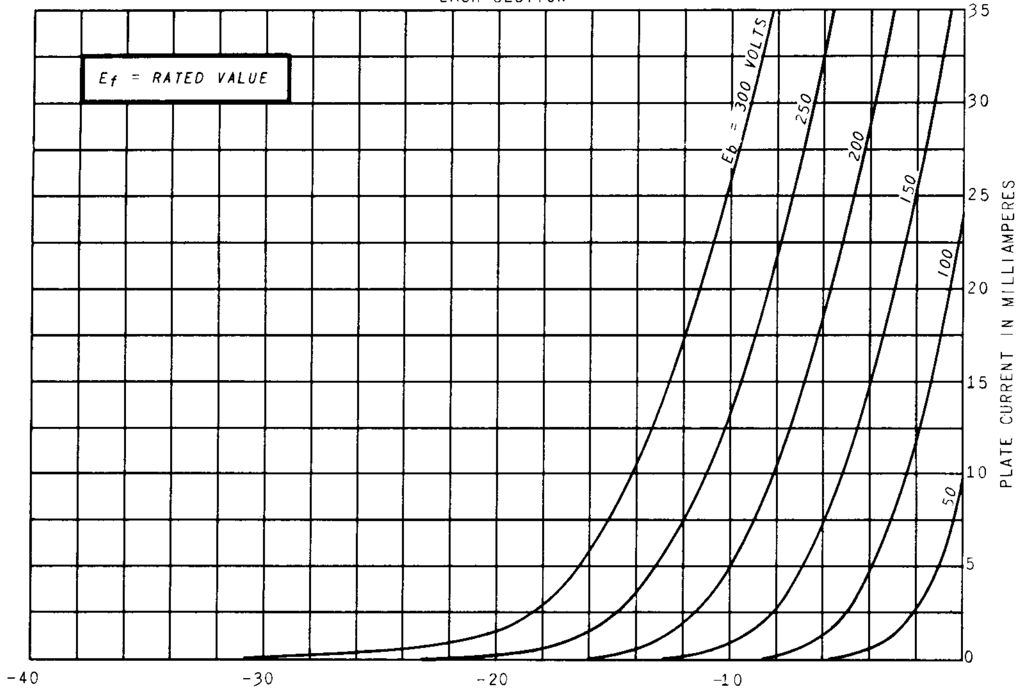


AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS

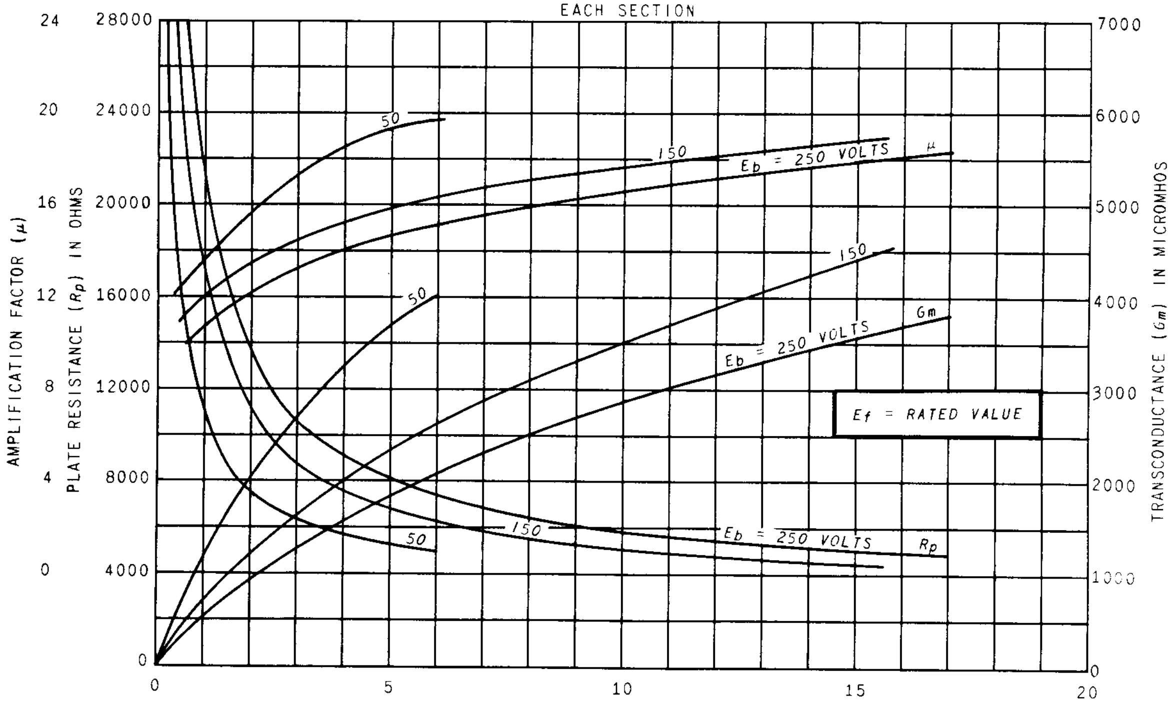
EACH SECTION



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AVERAGE CHARACTERISTICS

EACH SECTION



K-55611-TD275-4 AUGUST 17, 1964

TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky